

(12) United States Patent Irwin et al.

US 9,913,631 B2 (10) Patent No.:

(45) Date of Patent: Mar. 13, 2018

(54) BRUSH SYSTEM FOR A CELL COLLECTING DEVICE

(71) Applicant: Cook Medical Technologies LLC,

Bloomington, IN (US)

Inventors: Nate Irwin, Bloomington, IN (US);

Triona Campbell, Killaloe (IE)

Assignee: Cook Medical Technologies LLC,

Bloomington, IN (US)

Subject to any disclaimer, the term of this (*) Notice:

patent is extended or adjusted under 35

U.S.C. 154(b) by 334 days.

(21) Appl. No.: 14/742,416

(22)Filed: Jun. 17, 2015

(65)**Prior Publication Data**

US 2015/0366545 A1 Dec. 24, 2015

Related U.S. Application Data

(60) Provisional application No. 62/013,972, filed on Jun. 18, 2014.

(51) Int. Cl.

A61B 5/00 (2006.01)A61B 10/04 (2006.01)A61B 10/02 (2006.01)

(52) U.S. Cl.

CPC A61B 10/04 (2013.01); A61B 10/02 (2013.01); A61B 2010/0216 (2013.01)

(58) Field of Classification Search

CPC .. A61B 10/02; A61B 10/04; A61B 2010/0216 See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

2,847,990	A	8/1958	Ayre
4,245,653	A *	1/1981	Weaver A61B 10/0291
			600/563
4,245,663			
5,738,109	A *	4/1998	Parasher A61B 10/02
			600/569
9,055,963			Miloslavski A61B 17/221
2013/0267824	A1	10/2013	Johnson et al.

FOREIGN PATENT DOCUMENTS

WO WO 2005/079682 A1 9/2005 WO WO 2012/075409 A1 6/2012

OTHER PUBLICATIONS

International Search Report and Written Opinion for related International Application No. PCT/US2015/036188, dated Nov. 19, 2015 (17 pages).

* cited by examiner

Primary Examiner — Max Hindenburg (74) Attorney, Agent, or Firm — Brinks Gilson & Lione

ABSTRACT

A cell collection device for collecting cells from the inner surface of a body lumen is disclosed. The cell collection device includes a longitudinal member, a plurality of struts that are expandable radially, and a sheath having an inner surface that constrains the outward movement of the plurality of struts when the sheath is in a first position and does not constrain the outward movement of the plurality of struts when the sheath is in a second position.

22 Claims, 6 Drawing Sheets

